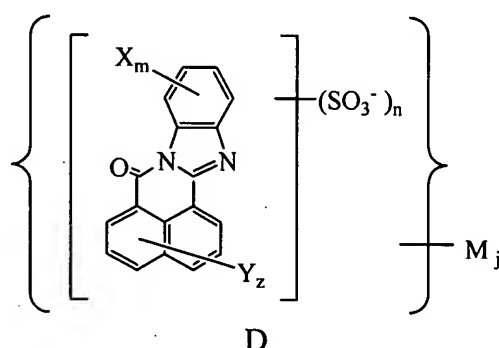## <u>Listing of Claims:</u>

The listing of the claims will replace all prior versions, and listings, of claims in the application:

Claims 1-5 (canceled)

6. (previously presented)   A lyotropic liquid crystal system comprising at least one 1,8-naphthoylene-1',2'-benzimidazole sulfoderivative of the general structural formula:

D

wherein:

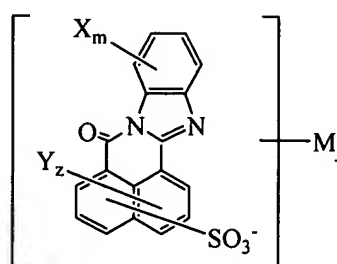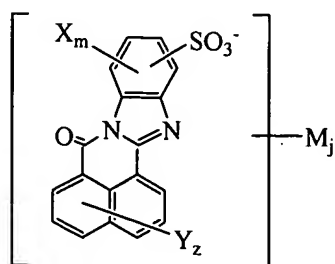n is an integer in the range from 1 to 4;

m is an integer in the range from 0 to 4;

z is an integer in the range of 0 to 6, such that values of m, n, and z satisfy the equation $m + z + n \leq 10$;

X and Y are individually selected from the group consisting of CH_3, C_2H_5, OCH_3, OC_2H_5, Cl, Br, OH and NH_2;
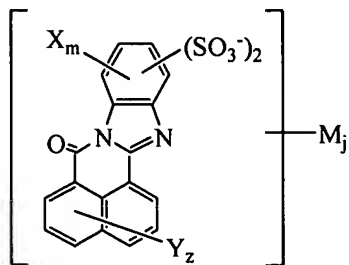
M is a counterion; and

j is the number of said counterions in said lyotropic liquid crystal system, or selected from the group consisting of structures I – VIII:
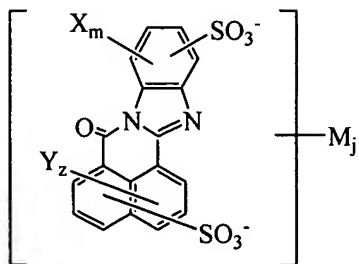
I

where m is an integer in the range of 0 to 3, and z is an integer in the range of 0 to 6;
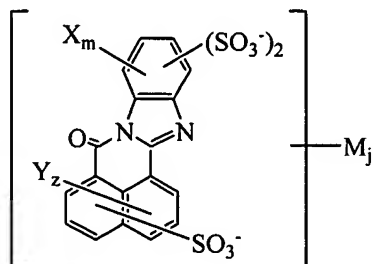
II

where m is an integer in the range of 0 to 4, and z is an integer in the range of 0 to 5;

III

.where m is an integer in the range of 0 to 2, and z is an integer in the range of 0 to 6;

IV

where m is an integer in the range of 0 to 4, and z is an integer in the range of 0 to 4;

V

where m is an integer in the range of 0 to 3, and z is an integer in the range of 0 to 5;

VI

where m is an integer in the range of 0 to 3, and z is an integer in the range of 0 to 4;
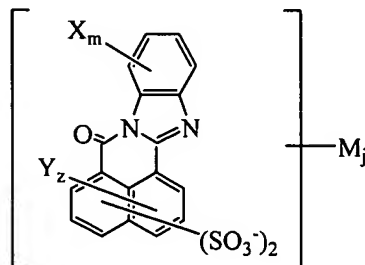
VII	VIII

where m is an integer in the range of 0 to 2, and z is an integer in the range of 0 to 5;

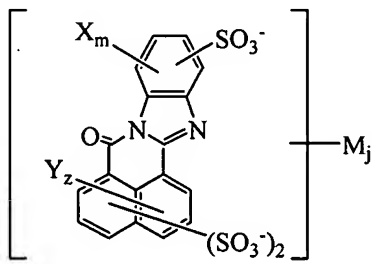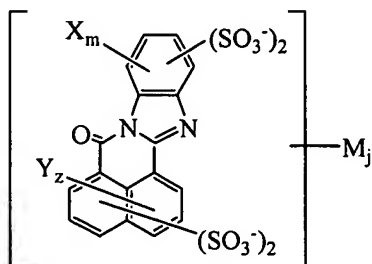where m is an integer in the range of 0 to 2, and z is an integer in the range of 0 to 4;

and X and Y are individually selected from the group consisting of CH_3, C_2H_5, OCH_3, OC_2H_5, Cl, Br, OH and NH_2.

7. (previously presented)   The lyotropic liquid crystal system of Claim 6, wherein said at least one 1,8-naphthoylene-1',2'-benzimidazole sulfoderivative is an individual-1,8-naphthoylene-1',2'-benzimidazole sulfoderivative.

8. (previously presented)   The lyotropic liquid crystal system of Claim 6, wherein said at least one 1,8-naphthoylene-1',2'-benzimidazole sulfoderivative is a mixture of at least two said individual 1,8-naphthoylene-1',2'-benzimidazole sulfoderivatives.

9. (previously presented)   The lyotropic liquid crystal system of Claim 6, further comprising a mixture of water and an organic solvent that is miscible with water in any proportion.

10. (previously presented)   The lyotropic liquid crystal system of Claim 6, further comprising a mixture of water and an organic solvent that is characterized by limited miscibility with water.

11. (previously presented)   The lyotropic liquid crystal system of Claim 6 wherein the concentration of said 1,8-naphthoylene-1',2'-benzimidazole sulfoderivatives is in the range of approximately 3% to 40% by mass.

12. (previously presented)   The lyotropic liquid crystal system of Claim 6 wherein the concentration of 1,8-naphthoylene-1',2'-benzimidazole sulfoderivatives is in the range of approximately 7% to 15% by mass.

13. (previously presented)   The lyotropic liquid crystal system of Claim 6 further comprising up to approximately 5% by mass of surfactants.
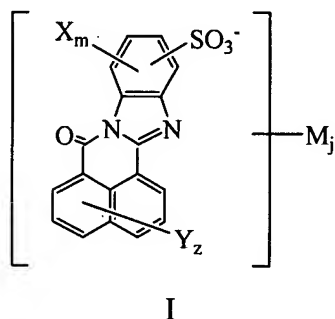
14. (previously presented)   The lyotropic liquid crystal system of Claim 6 further comprising up to approximately 5% by mass of plasticizers.

15. (previously presented)   The lyotropic liquid crystal system of Claim 6 further comprising at least one water-soluble organic dye.
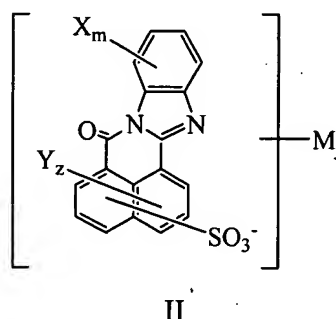
16. (previously presented)   The lyotropic liquid crystal system of Claim 6, further comprising at least one colorless organic compound capable of forming mixed liquid crystal phase with at least one of said 1,8-naphthoylene-1',2'-benzimidazole sulfoderivatives.

17. (previously presented)   The lyotropic liquid crystal system of Claim 8, wherein at least one of said mixture of at least two said individual 1,8-naphthoylene-1',2'- benzimidazole sulfoderivatives differs only in X and/or Y substituents.
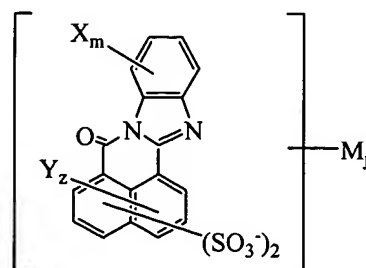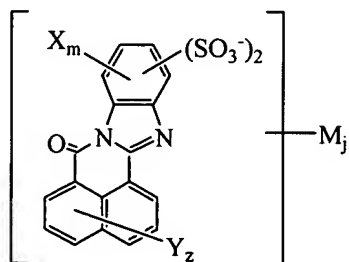
18. (previously presented)   A lyotropic liquid crystal system comprising a mixture comprising at least one individual 1,8-naphthoylene-1',2'-benzimidazole sulfoderivative selected from the group consisting of structures I – VIII:

I

II

where m is an integer in the range of 0 to 3, and z is an integer in the range of 0 to 6;
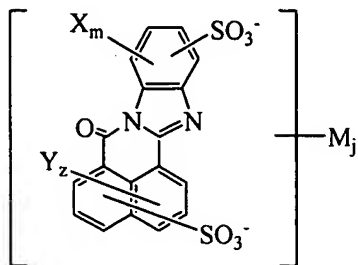
where m is an integer in the range of 0 to 4, and z is an integer in the range of 0 to 5;

III

where m is an integer in the range of 0 to 2, and z is an integer in the range of 0 to 6;

IV

where m is an integer in the range of 0 to 4, and z is an integer in the range of 0 to 4;
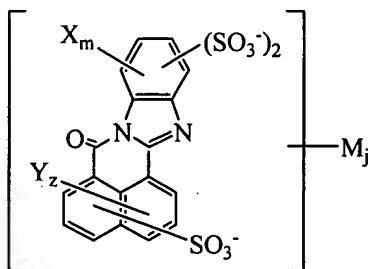

V

where m is an integer in the range of 0 to 3, and z is an integer in the range of 0 to 5;

VI

where m is an integer in the range of 0 to 3, and z is an integer in the range of 0 to 4;
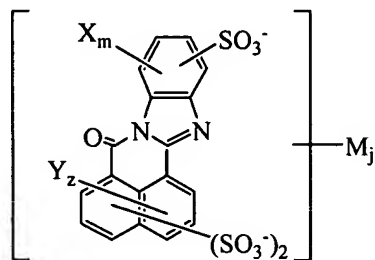

VII

where m is an integer in the range of 0 to 2, and z is an integer in the range of 0 to 5;
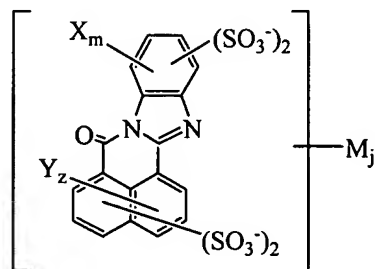
VIII

where m is an integer in the range of 0 to 2, and z is an integer in the range of 0 to 4;

and X and Y are individually selected from the group consisting of CH_3, C_2H_5, OCH_3, OC_2H_5, Cl, Br, OH and NH_2, wherein, the concentration of each said individual 1,8-naphthoylene-1',2'- benzimidazole sulfoderivative in said mixture depends on one or more desired properties of said mixture, said mixture comprises:

one or more monosulfoderivatives with a concentration in the range of approximately 0%

to 99% by mass;

one or more disulfoderivatives with a concentration in the range of approximately 0% to 99% by mass;

one or more trisulfoderivatives with a concentration in the range of approximately 0% to 30% by mass; and

one or more tetrasulfoderivatives with a concentration in the range of approximately 0% to 20% by mass.

19. (previously presented)   The lyotropic liquid crystal system of Claim 18, wherein said mixture comprises:

one or more monosulfoderivatives with a concentration in the range of approximately 50% to 99% by mass;

one or more disulfoderivatives with a concentration in the range of approximately 50% to 99% by mass;

one or more trisulfoderivatives with a concentration in the range of approximately 10% to 20% by mass; and

one or more tetrasulfoderivatives with a concentration in the range of approximately 5% to 10% by mass.

20. (allowed)   The optically anisotropic film of Claim 31, comprising an individual 1,8- naphthoylene-1',2'-benzimidazole sulfoderivative.

21. (allowed)   The optically anisotropic film of Claim 31, comprising two or more 1,8- naphthoylene-1',2'-benzimidazole sulfoderivatives.

22.   (canceled)

23. (allowed)   The optically anisotropic film of Claim 31, wherein said film further comprises at least one colorless organic compound capable of forming a liquid crystal system.

24.   (canceled)

25. (allowed)   The optically anisotropic film of Claim 31 wherein said film is at least partially crystalline.

26. (allowed)   The optically anisotropic film of Claim 31 comprising at least two 1,8-naphthoylene-1',2'- benzimidazole sulfoderivatives differing only in X and/or Y substituents.
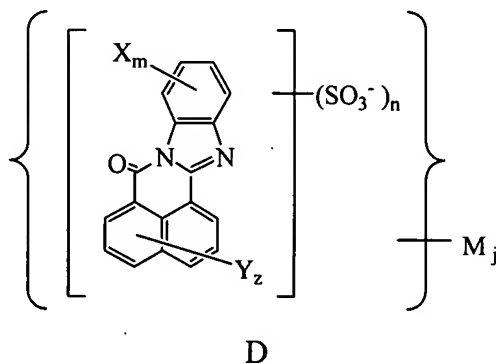
27.   (canceled)

28. (allowed)   The optically anisotropic film of Claim 31, wherein said film is a retarder film.

29. (allowed)   The optically anisotropic film of Claim 31, wherein said film is polarizing.

30.   (canceled)

31. (allowed)   An optically anisotropic film comprising at least one 1,8-naphthoylene-1',2'-benzimidazole sulfoderivative of the general structural formula:

D

wherein:

n is an integer in the range from 1 to 4;
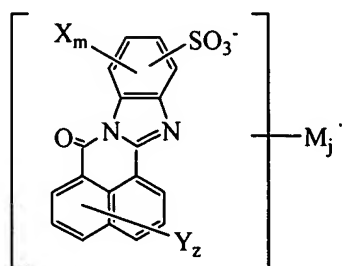
m is an integer in the range from 0 to 4;

z is an integer in the range of 0 to 6, such that values of m, n, and z satisfy the equation $m + z + n \leq 10$;

X and Y are individually selected from the group consisting of CH_3, C_2H_5, OCH_3, OC_2H_5, Cl, Br, OH and NH_2;

M is a counterion; and

j is the number of said counterions in said lyotropic liquid crystal system.

32. (allowed)   The optically anisotropic film of Claim 31, wherein said at least one 1,8-naphthoylene-1',2' benzimidazole sulfoderivative is selected from the group consisting of structures I – VIII:
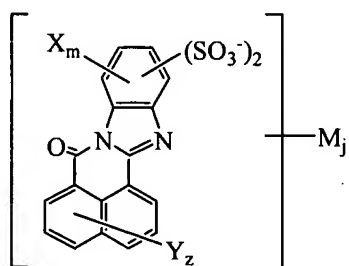

I

where m is an integer in the range of 0 to 3, and z is an integer in the range of 0 to 6;
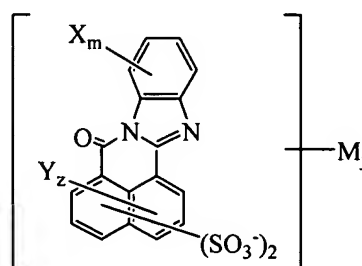

II

where m is an integer in the range of 0 to 4, and z is an integer in the range of 0 to 5;
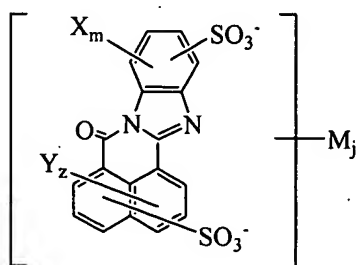

III

where m is an integer in the range of 0 to 2, and z is an integer in the range of 0 to 6;
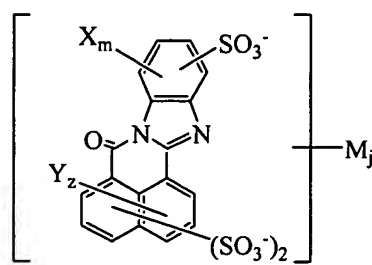

IV
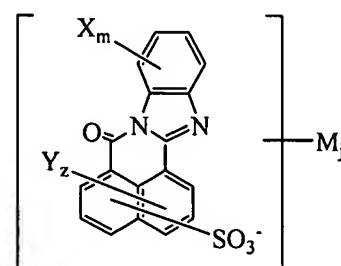
where m is an integer in the range of 0 to 4, and z is an integer in the range of 0 to 4;

V

VI

where m is an integer in the range of 0 to 3, and z is an integer in the range of 0 to 5;

where m is an integer in the range of 0 to 3, and z is an integer in the range of 0 to 4;

VII

VIII

where m is an integer in the range of 0 to 2, and z is an integer in the range of 0 to 5;

where m is an integer in the range of 0 to 2, and z is an integer in the range of 0 to 4;

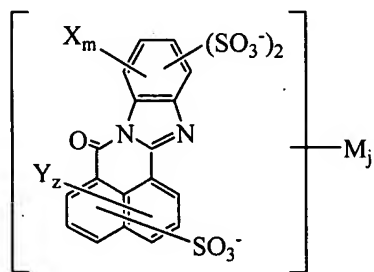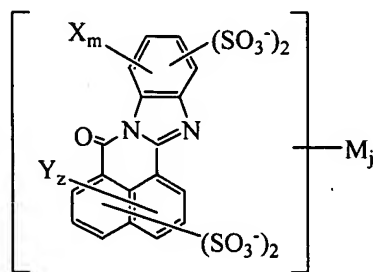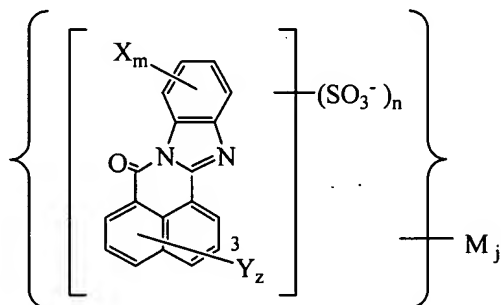and X and Y are individually selected from the group consisting of CH_3, C_2H_5, OCH_3, OC_2H_5, Cl, Br, OH and NH_2.

33. (allowed)   A method of fabricating anisotropic films comprising:

depositing on a substrate at least one sulfoderivative having a general structural formula:

D

including hydrates, solvates, counterion salts, or mixtures thereof, wherein:

n is an integer in the range of 1 to 4;

m is an integer in the range from 0 to 4;

z is an integer in the range of 0 to 6, such that the values of m, n, and z satisfy the
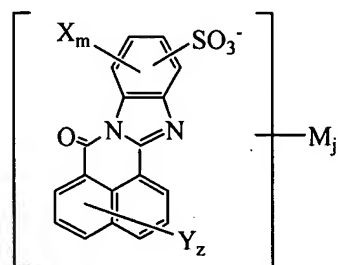
equation $m + z + n \leq 10$;

M is a single, mixture or fraction of said counterion salts associated with said at least one sulfoderivative;

j is the number of said counterion in said film;

applying an orienting force to said at least one sulfo-derivative; and
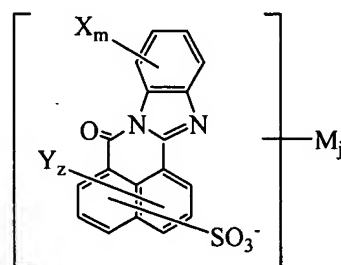
drying said at least one sulfo-derivative to form said film.

34. (allowed)   The method of Claim 33, wherein said at least one sulfoderivative

having said general structural formula is selected from the group consisting of structures I – VIII:
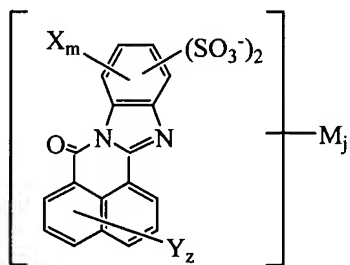

I

II

where m is an integer in the range of 0 to 3, and z is an integer in the range of 0 to 6;

where m is an integer in the range of 0 to 4, and z is an integer in the range of 0 to 5;

III

IV

where m is an integer in the range of 0 to 2, and z is an integer in the range of 0 to 6;

where m is an integer in the range of 0 to 4, and z is an integer in the range of 0 to 4;

V

where m is an integer in the range of 0 to 3, and z is an integer in the range of 0 to 5;

VI

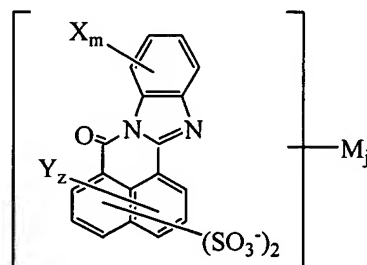where m is an integer in the range of 0 to 3, and z is an integer in the range of 0 to 4;

VII

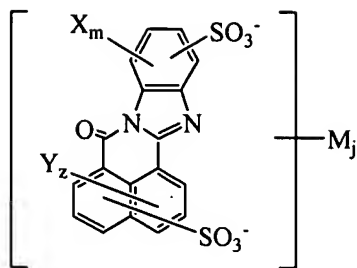where m is an integer in the range of 0 to 2, and z is an integer in the range of 0 to 5;

VIII

where m is an integer in the range of 0 to 2, and z is an integer in the range of 0 to 4;
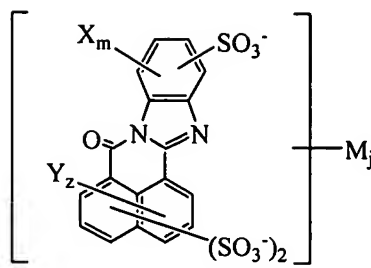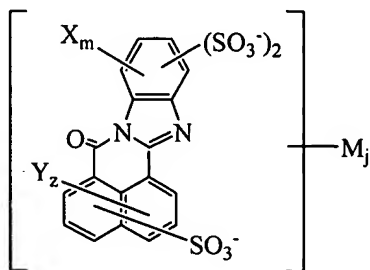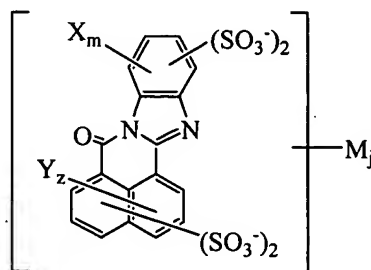
and X and Y are individually selected from the group consisting of CH_3, C_2H_5, OCH_3, OC_2H_5, Cl, Br, OH and NH_2.

35. (allowed)   The method of Claim 33, wherein hydrates or solvates includes water, organic solvents, or any miscible combinations thereof.

36. (allowed)   The method of Claim 33, wherein said counterion salt is a cation selected from the group consisting of H^+, NH_4^+, K^+, Li^+, Na^+, Cs^+, Ca^{2+}, Sr^{2+}, Mg^{2+}, Ba^{2+}, Co^{2+}, Mn^{2+}, Zn^{2+}, Cu^{2+}, Pb^{2+}, Fe^{2+}, Ni^{2+}, Al^{2+}, Ce^{2+}, La^{2+} or combinations thereof.

37. (allowed)   The method of Claim 33, wherein said orienting force is selected from the group consisting of mechanical, external, supramolecularity, hydrophobicity-hydrophilicity, molecular ordering, shear stress, gravitational, electromagnetic action and combination thereof.

38. (allowed)   The method of Claim 33, wherein said film is at least partially crystalline.

39. (allowed)   The method of Claim 33, wherein said film has a thickness in the range of approximately 0.2 to 1.2 μm.

40. (allowed)   The method of Claim 33, wherein said film has birefringency of 0.1 – 0.8 measured approximately in the range of 380 – 900 nm.

41. (allowed)   The method of Claim 33, further comprising at least one organic compound selected from the group consisting of dyes, water soluble dyes, organic dyes, and colorless compounds that form mixed liquid crystal systems with said at least one sulfoderivative.

42. (allowed)   The method of Claim 41, wherein said organic compound includes disodium chromoglycate, sulfoderivatives of disodium chromoglycate, sulfoderivatives of phenanthrophenazine, sulfoderivatives of naphthalenetetracarboxylic acid dibenzimidazole, sulfoderivatives of perylenetetracarboxylic acid dibenzimidazole, sulfoderivatives of indanthrone or mixtures thereof.

43. (allowed)   The method of Claim 33, further comprising modifiers, stabilizers, surfactants, additives or mixtures thereof.

44. (allowed)   The method of Claim 33, wherein said at least one sulfoderivative has a concentration of 3 – 30 % by mass.

45. (allowed)   The method of Claim 43, wherein each of said surfactant and plasticizer have a concentration up to 5% by mass.

46. (allowed)   A liquid crystal system comprising at least one sulfoderivative, characterized by a supramolecular structure having an increased homogeneity in orientation and transition dipole moment leading to optical anisotropy.